REMARKS

INTRODUCTION

Claims 1-5, 11-15, 28-31 and 33-71 were previously and are currently pending and under consideration.

Claims 6-10, 16-27 and 32 were previously cancelled.

Claims 4, 5, 14, 15, 31, 35, 38 and 61-71 are allowed.

Claims 1-3, 11-13, 28-30, 33, 34, 36 and 37 are rejected.

Claims 64 and 70 are objected to.

Claims 1, 3, 4, 28-31, and 33-38 are amended herein.

No new matter is being presented, and approval and entry are respectfully requested.

ENTRY OF AMENDMENT UNDER 37 CFR § 1.116

Applicant requests entry of this Rule 116 Response because:

(a) it is believed that the amendment of the claims puts this application into condition for allowance;

(b) the amendments were not earlier presented because the Applicant believed in good faith that the cited prior art did not disclose the present invention as previously claimed;

(c) the amendments of the claims should not entail any further search by the Examiner since no new features are being added or no new issues are being raised; and

(d) the amendments do not significantly alter the scope of the claims and place the application at least into a better form for purposes of appeal. No new features or new issues are being raised.

The Manual of Patent Examining Procedures sets forth in § 714.12 that "any amendment that would place the case either in condition for allowance or in better form for appeal may be

entered." Moreover, § 714.13 sets forth that "the Proposed Amendment should be given sufficient consideration to determine whether the claims are in condition for allowance and/or whether the issues on appeal are simplified." The Manual of Patent Examining Procedures further articulates that the reason for any non-entry should be explained expressly in the Advisory Action.

PRESENT INVENTION

An aspect of the present invention is to use one mutual impedance calculation and one moment method calculation (one system of equations) to find the approximate total current induced on an apparatus by a sideband-modulated radio wave. The sideband-modulated radio wave has a carrier wave component, an upper sideband (USB) component, and a lower sideband (LSB) component. The sideband components may modulate the carrier component.

An advantage may be gained by assuming the approximate equality of the mutual impedances of the frequencies of the radio wave components. Based on this assumption, a representative frequency (for example the carrier wave component's) may be treated as representative of each component of the radio wave. One preferably high-accuracy mutual impedance calculation of the representative frequency (e.g. the carrier frequency) may be performed to produce "a single common mutual impedance". A current induced by the representative wave component (e.g. the carrier component) may be found by the moment method using the representative wave component and the high-accuracy mutual impedance of the corresponding representative frequency.

Because of the mutual impedances of the component frequencies are assumed to be approximately equal, the total current may be found using a single moment method calculation with a single system of equations. For example, the calculated induced current may be proportionally related (e.g. claim 3) to the representative (or carrier) wave component intensity/value. This relation (e.g. proportion) may then be used to approximate the currents induced by the other non-representative components (e.g. the sideband components), based on the intensity/value of their respective wave components. The induced currents of each wave component may then be used to find the total current induced on the apparatus.

PRIOR ART: OTSU

The following summary of the prior art reference Otsu is based in part on an explanation from the inventor/assignee of Otsu (a co-inventor of the present invention). The following summary of Otsu is provided to assure that Applicant and the Examiner have a common understanding of Otsu. Because the rejection based on Otsu cannot be correct if the following summary of Otsu is correct, Applicant respectfully requests the Examiner to point out any disagreement with the following summary of Otsu. In view of this request, it is respectfully noted that according to MPEP § 706:

> The goal of examination is to clearly articulate any rejection early in the prosecution process so that the applicant has the opportunity to provide evidence of patentability and otherwise reply completely at the earliest opportunity. The examiner then reviews all the evidence, including arguments and evidence [e.g. summary of prior art] responsive to any rejection, before issuing the next Office action.

In Otsu, Figure 1 shows a first calculating means 16 that calculates the mutual impedance at sampling frequencies selected by a selecting means 15 in accordance with an accurate algorithm (corresponding to ST2 to ST4 in Figure 24 of Otsu).

Next, a generating means 17 generates an approximate expression of the mutual impedance from the sampling frequencies and the mutual impedance calculated by the first calculating means 16. The "approximate expression" refers to a polynomial equation as shown in col. 6, line 30 and col. 16, line 45 of Otsu (corresponding to ST5 in Figure 24 of Otsu).

Furthermore, a second calculating means 18 calculates the mutual impedance, at each of the frequencies set by the transforming means 11, by using the approximate expression generated by generating means 17 (corresponding to ST1 and ST2 in Figure 25 of Otsu).

Then, a simulating means 13 of Otsu finds a current spectrum, etc. flowing through each element according to the moment method from the mutual impedance calculated by the second calculating means 18 and each of the frequencies set by the transforming means 11

(corresponding to ST3 in Figure 25 of Otsu).

Also, where a wave obtained by modulating a carrier signal is used as a wave source, a separating means 21 (Figure 2) separates the wave source into three wave sources having different frequencies defined by both the frequency of the carrier signal and the frequency of the modulated signal (see claim 27 of Otsu).

Next, a simulating means 22 finds a current of the frequency domain flowing in each element by applying the moment method to each of the wave sources separated by the separating means 21 (see claim 27 of Otsu).

Further, a calculating means 23 calculates the current of the time domain from the current of the frequency domain found by the simulating means 22 (see claim 27 of Otsu).

OBJECTIONS TO THE CLAIMS

Claim 70 was objected as depending upon claim 64, claim 64 was objected to as depending upon non-existent claim 72. Claim 64 is amended herein to depend upon claim 62. Withdrawal of the objection is respectfully requested.

REJECTIONS UNDER 35 USC § 102

In the Office Action, at pages 4-6, claims 1, 3, 11, 13, 14, 28-30, 33, 34, 36, and 37 were rejected under 35 U.S.C. § 102 as anticipated by Otsu. This rejection is traversed and reconsideration is requested.

It is respectfully noted that even if some new grounds of rejection are cited, "[t]he examiner must ... address any arguments presented by the applicant *which are still relevant* to any references being applied" (MPEP § 707.07(f)).

CLAIMS 1, 3, 28, 29, 30, 33, 34, 36, AND 37: TOTAL CURRENT FROM SINGLE COMMON IMPEDANCE AND SINGLE CORRESPONDING SYSTEM OF EQUATIONS

A function of claim 1, for example, is to "simulate the electric current flowing through the

electronic apparatus due to a radio wave radiated by an antenna". This may be accomplished by setting "a representative frequency" that represents each of a carrier, upper sideband, and lower sideband frequencies. The current may be calculated as follows:

(A) "at the set representative frequency, the *single* common mutual impedance" is calculated among the antenna elements, where the *single* common mutual impedance "commonly represents the mutual impedance of each of the carrier wave frequency, the upper sideband frequency, and the lower sideband frequency" (for support, see at least page 10, lines 10-15); and

(B) the *total current* induced by the radio wave components is calculated with "a *single system of simultaneous equations* under the moment method *having the single common mutual impedance*" (for support, see at least page 30, line 21, to page 31, line 9).

In contrast to (A) above, Otsu first finds mutual impedance at *multiple* sampling frequencies using an accurate and costly algorithm (see ST2, ST3, and ST4, Figure 24). The accurate mutual impedances are used to find approximate coefficients (ST5, Figure 24). Then, in contrast to (B) above, for *multiple frequencies* (Figure 25, ST1: f_n, n = 1 ... N), mutual impedance is approximated (ST2, Figure 25). In further contrast to (B), for *each* of the multiple frequencies f_n, the current is calculated using the moment method with a different set of simultaneous equations corresponding to the frequency f_n currently being calculated. Thus, with Otsu, there is not a representative frequency that represents the other frequencies in the manner of claim 1, and many calculations at different frequencies are used to find total current. Claim 1, for example, recites finding total current with a *single* system of simultaneous equations having the single common mutual impedance.

Claim 3, for example, recites finding total current by "solving a single system of simultaneous equations under the moment method having the single mutual impedance calculated" that was calculated with the representative frequency. Withdrawal of the rejection of claims 1, 3, 28-30, 33, 34, 36, and 37 is respectfully requested.

CLAIMS 3, 28, 30, 34, AND 37: PROPORTIONAL RELATION

Claim 3, for example, recites "calculating the electric currents ... flowing through the electronic apparatus due to the radio wave radiated by an antenna, *by using a proportional*

relation between the electric current calculated by the second calculating unit and a value of a wave source of the antenna at the representative frequency, from among the carrier wave frequency, upper sideband frequency and lower sideband frequency, for which the second calculating unit calculated the above electric current, and applying the proportional relation to a value of a component of the wave source of the antenna at the frequency other than the above frequency for which the second calculating unit calculated the above electric current". In other words, a single current calculation can be used with a proportional relation to find other currents induced by the radio wave.

The proportional feature of claim 3, for example, may involve (1) the electric current calculated by the second calculating unit, (2) the value of a wave source of the antenna at the representative frequency for which the second calculating unit calculated its electric current, and (3) the value of a wave source of the antenna at a frequency other than the representative frequency used by the second calculating unit. The proportional relation between (1) and (2) may be applied to (3) to get a current induced by the non-represented wave component emitted by the antenna. Otsu does not discuss this feature.

The rejection equates the approximation of Otsu with the present proportional relation. However, an approximation is not a proportional relation. The Merriam Webster Dictionary indicates that a "proportion" can be "the relation of one part to another or to the whole with respect to magnitude, quantity, or degree : RATIO". The approximation of Otsu (e.g. col. 16, line 45) is not a proportional relation between a calculated current and a value of a wave source.

Furthermore, the current calculated by Otsu is not one that is other than the current calculated by the second calculating unit (corresponding to the representative frequency). Each current calculated by Otsu corresponds directly to the mutual impedance of the frequency f_n that is being processed. As noted in Otsu, rather than finding one current from another, the calculating of each current "becomes independent for every frequency" (col. 18, lines 30-34). In claim 3, for example, the currents of different components/frequencies are found by a proportional relation therebetween.

Withdrawal of the rejection of claims 3, 28, 30, 34, and 37 is further respectfully requested.

REJECTIONS UNDER 35 USC § 103

In the Office Action, at pages 6 and 7, claims 2, 5, 12 and 15 were rejected under 35 U.S.C. § 103 as being unpatentable over Otsu in view of Nakanishi. Claims 5 and 15 depend from allowed claims. Claims 2 and 12 and allowable as discussed below. Withdrawal of the rejection is respectfully requested.

DEPENDENT CLAIMS

The dependent claims are deemed patentable due at least to their dependence from allowable independent claims. These claims are also patentable due to their recitation of independently distinguishing features. For example, claim 12 recites "processing is performed in accordance with simultaneous equations under the moment method, considering a dielectric, having the mutual impedance, mutual admittance and mutual reaction". This feature is not taught or suggested by the prior art. Withdrawal of the rejection of the dependent claims is respectfully requested.

MISCELLANEOUS CORRECTIONS

Various of the claims, including some previously-allowed claims, are amended to correct a clerical error; "interior" is changed to "carrier". Some items incorrectly recited as being first-mentioned (e.g. "a radio wave", "an antenna") are amended to correctly reflect the existence of corresponding antecedents. These corrections are not intended to affect the scope of the claims.

CONCLUSION

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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CERTIFICATE UNDER 37 CFR 1.8(a)
I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450
on August 25, 2003
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